Python Machine Learning Labs

Good morning!

We start at 10:00

Course Project

- Form groups by end of week (Sunday)
- Groups of 3 (min) to 4 (max)
  - → mix: 1 DA / 1 DS / 1 DE
- Choose 1 out of 2 projects
- Submit 1 Support Ticket per group
- Project timeline: ~ 1-3 months

Break

Back at 11:45

Project 2

~ 7000 - 10000 Machine learning (1)

ML

Explainer

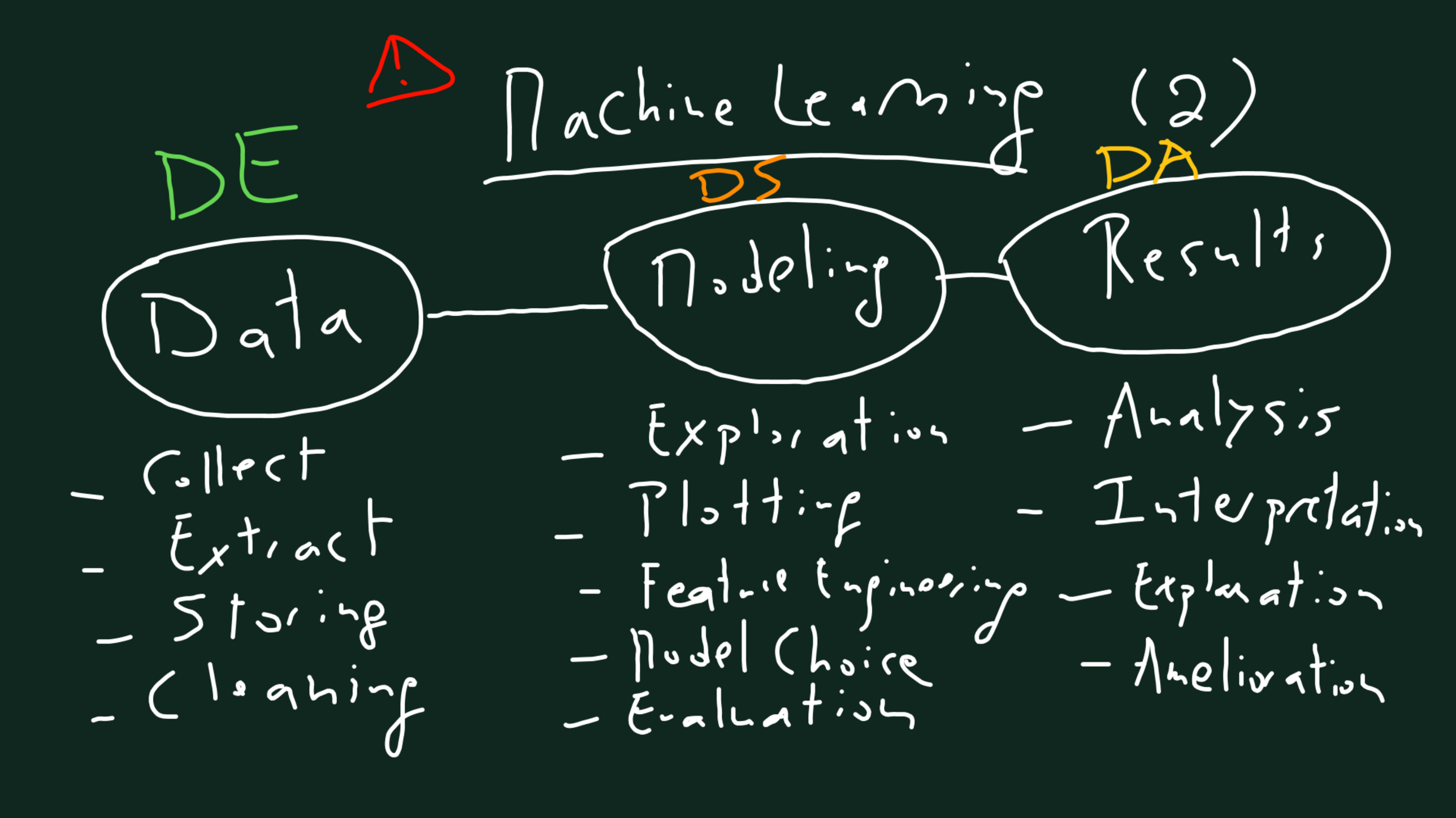
what is it ?

Question ?

Model

Answer

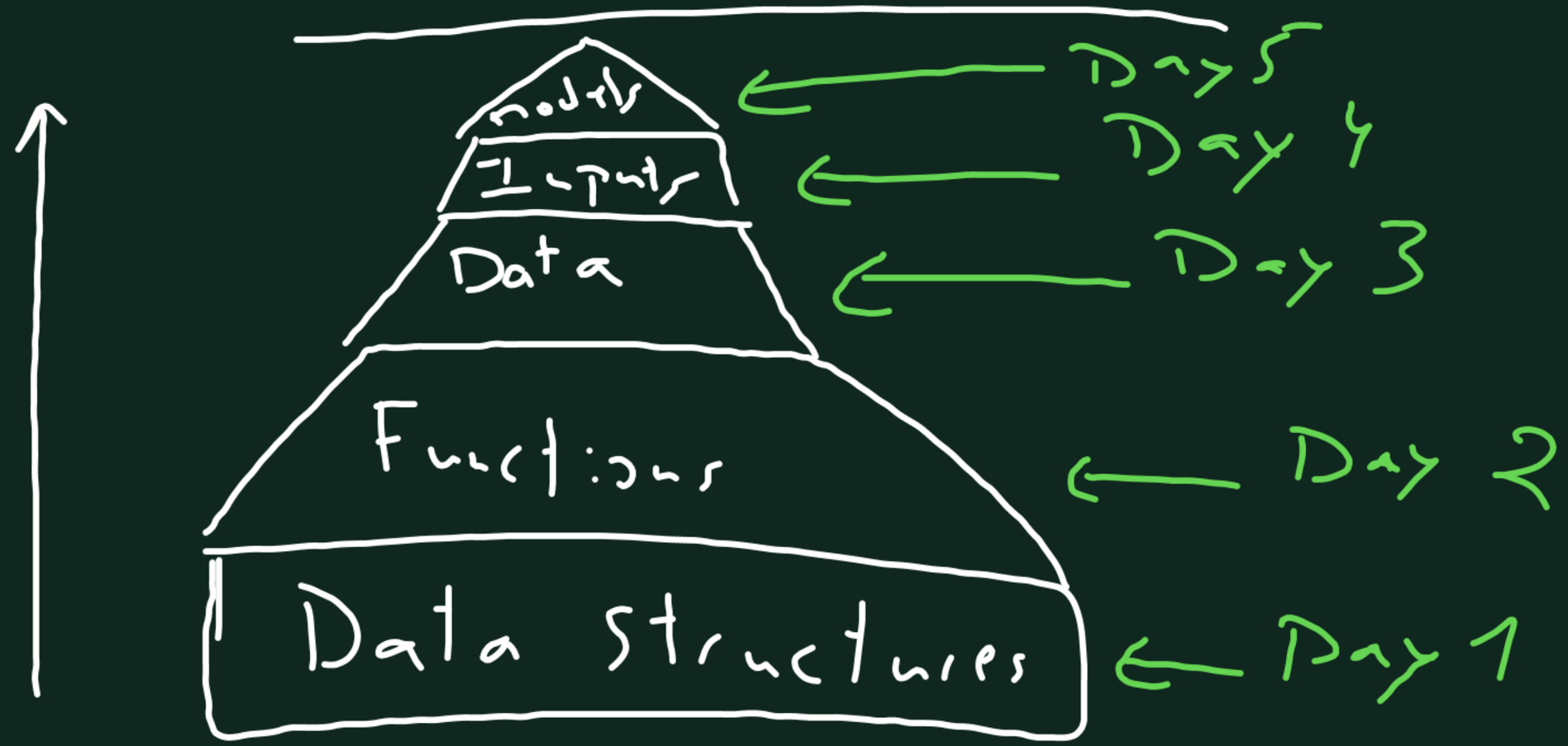
Machine Learning (2)



Lunch

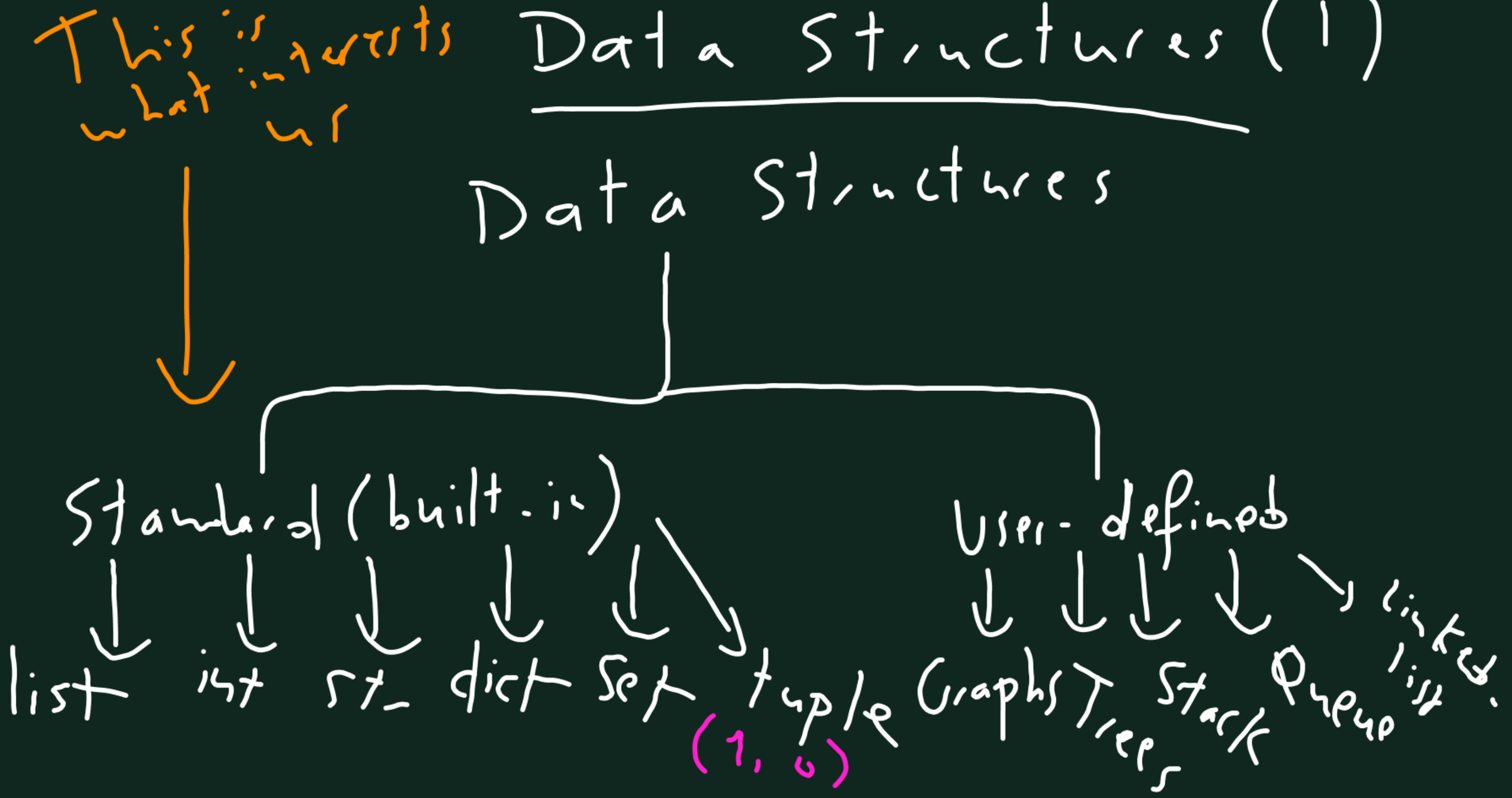
Back at 14:00

The ML Pyramid



Data Structures (1)

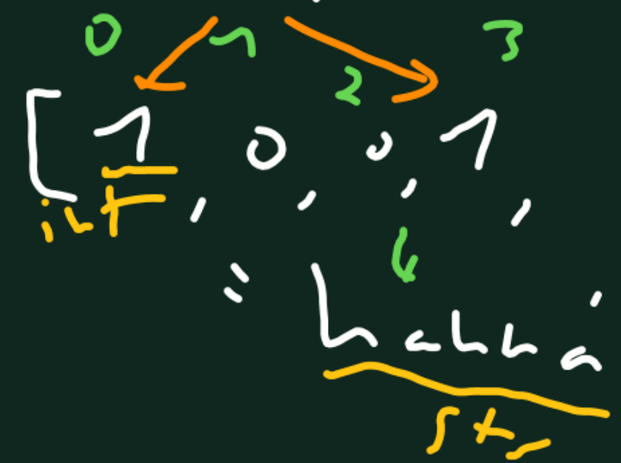
This is what interests us



Data Structures (2)

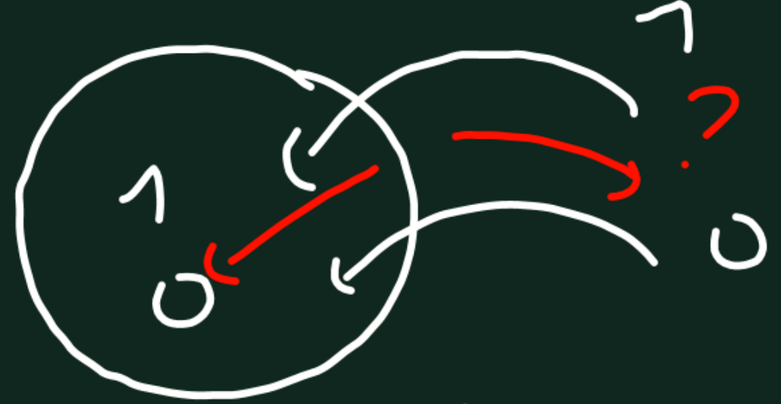
List

- Order
- Allows duplicates
- List = [1, 0, 0, 1, "hahha"]



Set

- Uniqueness



set(1, 0, ~~0~~)

Data Structures (3)

Mutable (can change)	Immutable (cannot be changed)
`_mylist = ['h', 'a', 'n', 'n', 'a']`	`mystring = 'hanna'` (0 1 2 3 4)
`print(mylist[0])` → h	`print(mystring[0])` → h
`mylist[0] = 'm'`	`mystring[0] = 'm'`
`print(mylist[0])` → m	ERROR: Str is not mutable

Data Structures (4)

List slicing

0 1 2 3 4

`mylist = [h, e, l, l, o]`

`mylist[0:3:1] = [h, e, l]`

start stop step

"The 3 S's"

Data Structures (5)

"start at the beginning"

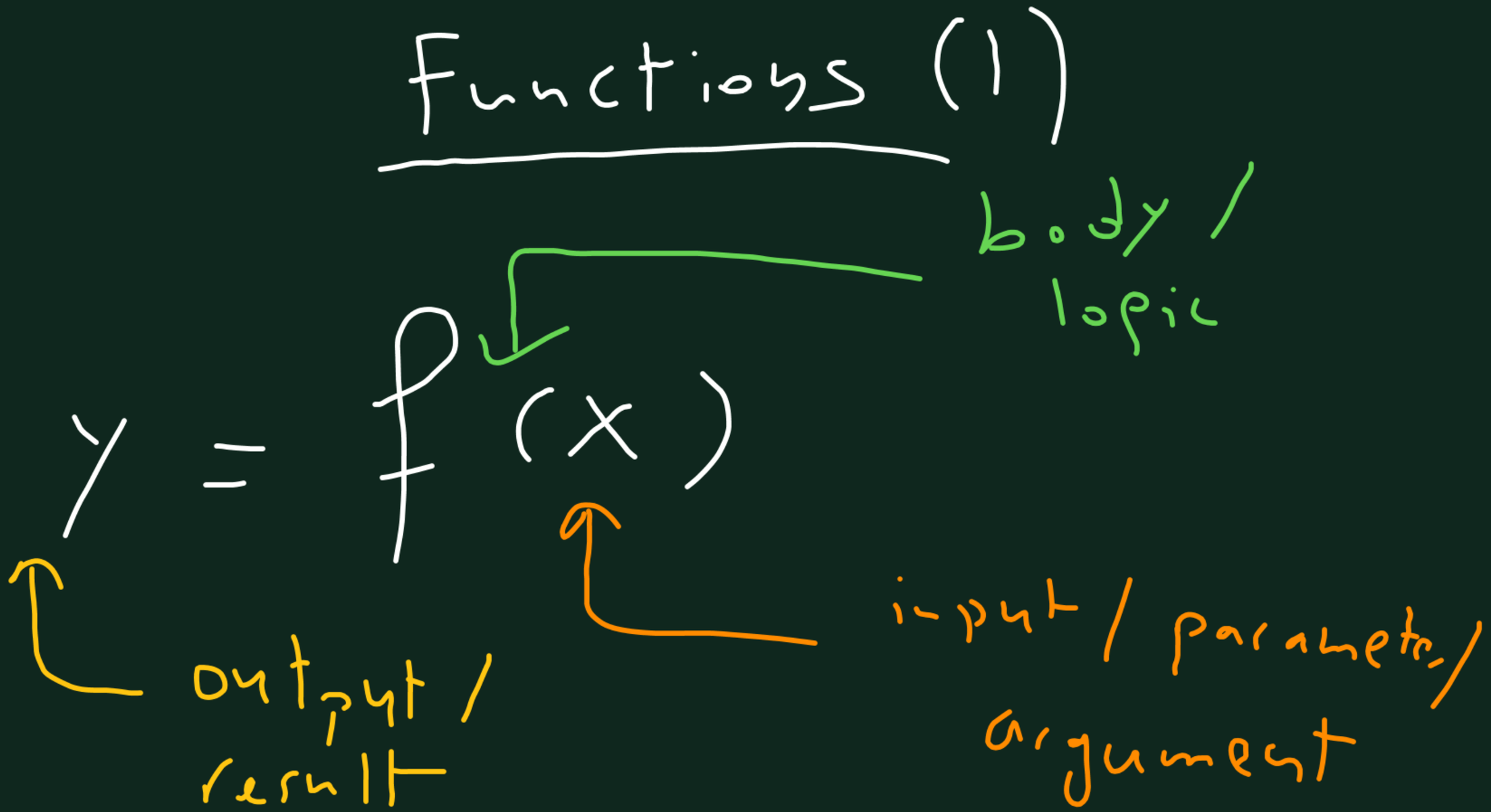
"stop at the end"

```
mylist[::] = [h, e, l, l, o]
mylist[::-1] = [o, l, l, e, h]
```

Break

Back at 15:05

Functions (1)



Functions (2)

lambda

$$f(x) = x^2$$

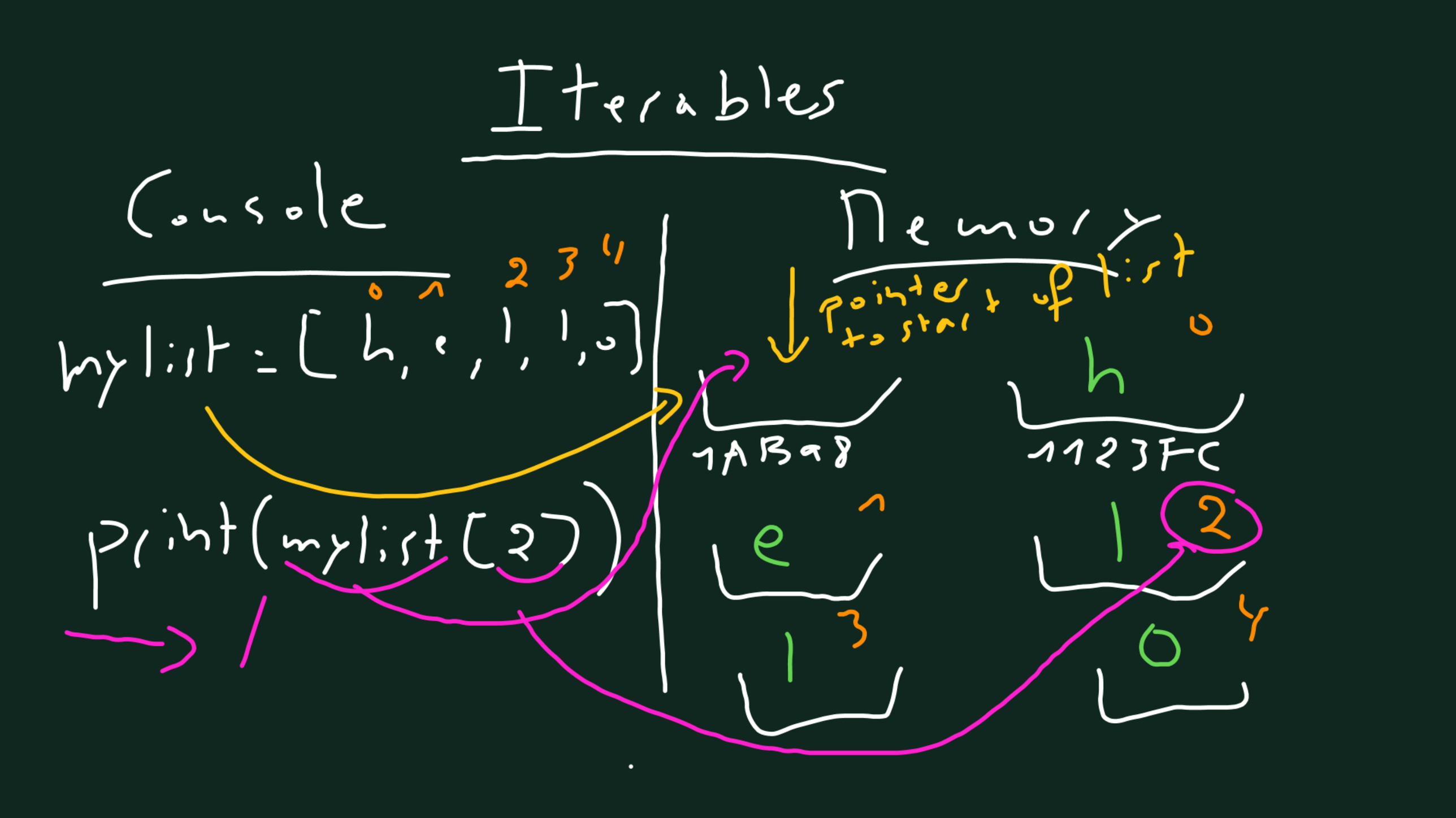
$X = 3 \longrightarrow f(x) = 9$

$X = -3 \longrightarrow f(x) = 9$

$3 \xrightarrow{|x|} |3| \xrightarrow{x^2} 9$

$-3 \xrightarrow{|x|} |-3| \xrightarrow{x^2} 9$

Iterables


Console
Memory
0 1 2 3 4
mylist = [h, e, l, l, o]
print(mylist[2])
pointer to start of list
1ABa8
h
0
112JFC
e
1
l
2
l
3
o
4

Generators

Console

Memory

```
mygen = (x for x in range(3))
```

mygen

1FA287

mygen[0]

(0, 1, 2)

→ ERROR

Programming Styles

(Declarative)

Imperative

```
x = 1
y = 2
sum = x + y
print(sum)
```

Functional

```
def sum2numbers(x,y):
    return x + y

print(sum(1,2))
```